

CRITICAL ITEMS LIST (CIL)

SYSTEM: Thermal Protection System FUNCTIONAL CRIT: 1
 SUBSYSTEM: Intertank PHASE(S): b, c
 REV & DATE: K, 6-29-01 HAZARD REF: T.02
 DATE: 001, 2-7-02
 ANALYSTS: B. Burkes/R. Lauto

FAILURE MODE: Loss of SOFI Material

FAILURE EFFECT: b) Loss of mission and vehicle/crew due to structural failure caused by overheating.
 Loss of mission and vehicle/crew due to debris impacting Orbiter in critical areas.
 c) Loss of life caused by ET impacting outside the footprint due to early breakup during reentry.
 Loss due to debris impacting Orbiter in critical area during TAL abort.

TIME TO EFFECT: Seconds

FAILURE CAUSE(S): A: Material Deficiency
 B: Process Deficiency

REDUNDANCY SCREENS: Not Applicable

FUNCTIONAL DESCRIPTION: This foam provides protection for the Intertank from prelaunch, ascent and reentry environments.

FMEA ITEM CODE(S)	PART NO.	PART NAME	QTY	EFFECTIVITY
5.6.2.1	80971118413	Intertank Foam Installation	1	ET-61 & Up
	80971108402	Intertank Foam Machining Cell "L"	1	ET-91,96-98
	80971108422	Foam C/O, Intertank P/L Brackets	1	ET-61 & Up
	80971008441	Foam C/O, Intertank Fairings	1	ET-61 & Up
	80931017062	Structural Installation (SLA Closeout, IFA Investigation Instrumentation)	1	ET-100
	80911017065	I/T TPS Closeout Offsite	1	ET-115

REMARKS: The Intertank foam applications are grouped as the failure mode, causes and effects are the same.

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CONTINUATION SHEET

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SUBSYSTEM: Intertank
FMEA ITEM CODE(S): 5.6.2.1

REV & DATE: K, 6-29-01
DCN & DATE: 001, 2-7-02

RATIONALE FOR RETENTION

STP1503, 1510, 1512, 1518, 1525, 1532, 1535, 1536, 1540 (alternate to 1503, 1513 and 1536), 3001, 3003 and 6014 are applicable to this FMEA Item Code. See page 1 for the Retention Rationale specified by these STP's. The following additional Retention Rationale is also applicable to this FMEA Item Code:

DESIGN:

B: SOFI material applied over adhesive (STM-M-488) in areas having transport mechanisms to the Orbiter is vented as defined in 80971029442. Venting eliminates a potential source of debris.

TEST:

The Intertank Foam TPS Applications are certified. Reference HCS's MMC-ET-TM08-L-T006, T501, T503, T504 and T507. Refer to the HCS(s) for effectivity data applicable to specific part numbers and material type.

INSPECTION:

B: Inspect primed surface for visual cleanliness (80911017065) for ET-115 only. |

B: Verify density and tensile test (STP1503 and 80911017065) for ET-115 only. |

B: Verify TPS thickness (80911017065) for ET-115 only. |

B: Inspect adhesive thickness (STP1510 and 80931017062) for ET-100 only.

B: Verify density and tensile test (STP1510 and 80931017062) for ET-100 only.

B: Verify TPS thickness and configuration (80931017062) for ET-100 only.

FAILURE HISTORY:

Current data on test failures, unexplained anomalies and other failures experienced during ground processing activity can be found in the PRACA data base.